



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,139	12/13/2001	Susan Marie Cox	ROC920010226US1	1643
31647	7590	06/13/2006	EXAMINER	
DUGAN & DUGAN, P.C. 55 SOUTH BROADWAY TARRYTOWN, NY 10591			LEE, ANDREW CHUNG CHEUNG	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/022,139

Applicant(s)

COX ET AL.

Examiner

Andrew C. Lee

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 17 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 7, 22, 2, 9, 3, 8, 4, 12, 5, 10, 13, 18, 23, 14, 15, 19, 17, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collier (U.S. 6766464 B2) in view of Oshiba (US 5226026).

Regarding claims 1, 7, 22, Collier discloses the limitation of a method of deskewing parallel data streams (recited “compensating skew across a plurality of data interfaces” as deskewing parallel data streams; Fig. 1, column 1, lines 65 – 67), comprising: receiving a plurality of data streams (recited “receiving any such collection of multiple inputs” as receiving a plurality of data streams; Fig. 1, elements 201, 202, 211, 212; column 3, lines 4 – 11); storing each of the received data streams in a respective buffer (recited “the individual clock signal may be buffer by a simple buffer” as storing each of the received data streams in a respective buffer ; column 2, lines 8 – 16, column 3, lines 22 – 24); detecting synchronization signals in the data streams (recited “recovered clock signal” as detecting synchronization signals; column 2, lines 2 – 8); and controlling the buffers to read out the stored data streams on the basis of the detected synchronization signals (recited “output data in accordance with the recovered clock signal” as controlling the buffers to read out the stored data streams on the basis of the detected synchronization signals; column 2, lines 16 – 22, column 3, lines 31 – 35). Collier does not

Art Unit: 2616

disclose explicitly wherein a portion of the synchronization signals in the data streams may be suppressed and wherein a timer is used to determine a particular synchronization signal has been suppressed. Oshiba discloses the limitation of wherein a portion of the synchronization signals in the data streams may be suppressed (recited “ the pseudo byte synchronizing pattern detecting signal will be suppressed” as a portion of the synchronization signals in the data streams may be suppressed; column 6, lines 50 – 58) and wherein a timer is used to determine a particular synchronization signal has been suppressed (recited “the pseudo byte synchronizing pattern detecting signal is generated by the timing” as a timer is used to determine a particular synchronization signal has been suppressed; column 6, lines 65 – 68, column 7, lines 1 – 2, 8 – 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Collier to include wherein a portion of the synchronization signals in the data streams may be suppressed and wherein a timer is used to determine a particular synchronization signal has been suppressed such as that taught by Oshiba in order to provide a data reproducing apparatus wherein data can be read out even in case the first byte synchronizing pattern can not be correctly detected (as suggested by Oshiba, see column 2, lines 39 – 42).

Regarding claims 2, 9, Collier discloses the limitation of the method of claimed wherein the plurality of data streams consists of two data streams (recited “ a multitude of data input; Fig. 1, elements 201, 202, column 3, lines 4 – 7).

Regarding claims 3, 8, Collier discloses the limitation of the method of claimed wherein the detecting step includes reading synchronization signals in the data streams stored in the

Art Unit: 2616

buffers (recited “data is deskewed and read from the deskew buffers using a clock signal recovered from one of the plurality of data interfaces” as reading synchronization signals in the data streams stored in the buffers; column 2, lines 16 – 22).

Regarding claims 4, 12, Collier discloses the limitation of the method of claimed wherein the controlling step includes controlling respective read pointers of the buffers to simultaneously point at synchronization signals stored in the buffers (recited “ the lanes are instructed to simultaneously send a recognizable training sequence” as controlling respective read pointers of the buffers to simultaneously point at synchronization signals stored in the buffers; column 3, lines 39 – 45).

Regarding claims 5, 10, Collier discloses the limitation of the method of claimed wherein each of the data streams is received via a respective receiver port (recited “data on each of the data interfaces arrives at a same incoming rate” as each of the data streams is received via a respective receiver port; column 1, line 67, column 2, lines 1 – 2).

Regarding claims 13, 18, 23, Collier discloses the limitation of an apparatus adapted to deskew parallel data streams (recited “ compensating skew across a plurality of data interfaces” as deskewing parallel data streams; Fig. 1, column 1, lines 65 – 67), comprising: a first port adapted to receive a first data stream (recited “the decode input data in accordance with the individual data interface’s clock signal at the incoming clock rate” as a first port adapted to receive a first data stream; Fig. 2, element 321; column 4, lines 9 – 15); a second port adapted to

Art Unit: 2616

receive a second data stream (recited “the decode input data in accordance with the individual data interface’s clock signal at the incoming clock rate” as a first port adapted to receive a first data stream; Fig. 2, element 322; column 4, lines 9 – 15); a first buffer coupled to the first port and adapted to store the received first data stream (Fig. 2, element 261; column 4, lines 20 – 24); a second buffer coupled to the second port and adapted to store the received second data stream (Fig. 2, element 262; column 4, lines 20 – 24); and a deskew circuit coupled to the first and second buffers and operative to (Fig. 2, element 280; column 3, lines 35 – 40): detect synchronization signals in the first and second data streams; and control the first and second buffers to read out the stored first and second data streams on the basis of the detected synchronization signals (column 2, lines 12 – 22; column 3, lines 37 – 45). Collier does not disclose explicitly wherein a portion of the synchronization signals in the data streams may be suppressed and wherein a timer is used to determine a particular synchronization signal has been suppressed. Oshiba discloses the limitation of wherein a portion of the synchronization signals in the data streams may be suppressed (recited “ the pseudo byte synchronizing pattern detecting signal will be suppressed” as a portion of the synchronization signals in the data streams may be suppressed; column 6, lines 50 – 58) and wherein a timer is used to determine a particular synchronization signal has been suppressed (recited “the pseudo byte synchronizing pattern detecting signal is generated by the timing” as a timer is used to determine a particular synchronization signal has been suppressed; column 6, lines 65 – 68, column 7, lines 1 – 2, 8 – 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Collier to include wherein a portion of the synchronization signals in the data streams may be suppressed and wherein a timer is used to determine a particular synchronization

Art Unit: 2616

signal has been suppressed such as that taught by Oshiba in order to provide a data reproducing apparatus wherein data can be read out even in case the first byte synchronizing pattern can not be correctly detected (as suggested by Oshiba, see column 2, lines 39 – 42).

Regarding claims 14, Collier discloses the limitation of the apparatus of claimed wherein the deskew circuit detects the synchronization signals by reading the synchronization signals in the first and second data streams respectively stored in the first and second buffers (recited “each deskew buffer receives data in accordance with its individual clock signal and outputs data in accordance with the recovered clock signal” as deskew circuit detects the synchronization signals by reading the synchronization signals in the first and second data streams respectively stored in the first and second buffers; Fig. 2, element 280; column 3, lines 31 – 45).

Regarding claims 15, 19, Collier discloses the limitation of the apparatus of claimed wherein the first buffer, the second buffer and the deskew circuit are implemented in a programmable logic device or an application specific integrated circuit (recited “inifiniband architecture, and point-to-point switched I/O fabric” as implemented in a programmable logic device or an application specific integrated circuit; column 2, lines 52 – 63).

Regarding claims 17, 21, Collier discloses the limitation of the apparatus of claimed wherein the deskew circuit controls respective read pointers of the first and second buffers to simultaneously point at synchronization signals stored in the first and second buffers (recited “the lanes are instructed to simultaneously send a recognizable training sequence” as controlling

Art Unit: 2616

respective read pointers of the buffers to simultaneously point at synchronization signals stored in the buffers; column 3, lines 39 – 45).

3. Claims 6, 11, 16, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Collier (U.S. 6766464 B2) and Oshiba (US 5226026) as applied to claims 1, 7, 22, 2, 9, 3, 8, 4, 12, 5, 10, 13, 18, 23, 14, 15, 19, 17, 21 above, and further in view of Watanabe (U.S. 6807377 B1).

Regarding claims 6, 11, Collier discloses the limitation of a method of deskewing parallel data streams, comprising: receiving a plurality of data streams (recited “compensating skew across a plurality of data interfaces” as deskewing parallel data streams; Fig. 1, column 1, lines 65 – 67; recited “receiving any such collection of multiple inputs” as receiving a plurality of data streams; Fig. 1, elements 201, 202, 211, 212; column 3, lines 4 – 11); Collier and Oshiba do not disclose expressly the method of claimed wherein each of the data streams is received via a respective optical fiber. Watanabe discloses the limitation of the method of claimed wherein each of the data streams is received via a respective optical fiber (recited “in a parallel optical transmission module” as data streams is received via a respective optical fiber; Fig. 1, column 2, lines 29 – 35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Collier and Oshiba to include a method of claimed wherein each of the data streams is received via a respective optical fiber such as that taught by Watanabe in order to provide a parallel optical transmission/reception module realizing a larger and longer data transfer using parallel optical transmission by detecting and/or correcting skews between parallel data channels (as suggested by Watanabe, see column 1, lines 36 – 39).

Regarding claims 16, 20, Collier discloses the limitation of a method of deskewing parallel data streams, comprising: receiving a plurality of data streams ((recited “ compensating skew across a plurality of data interfaces” as deskewing parallel data streams; Fig. 1, column 1, lines 65 – 67; recited “receiving any such collection of multiple inputs” as receiving a plurality of data streams; Fig. 1, elements 201, 202, 211, 212; column 3, lines 4 – 11); However, both Collier and Oshiba do not disclose explicitly the apparatus of claimed wherein the first port is coupled to a first optical fiber and the second port is coupled to a second optical fiber. Watanabe discloses the limitation the apparatus of claimed wherein the first port is coupled to a first optical fiber and the second port is coupled to a second optical fiber (recited “the optical fibers 13a – 13d in the optical fiber ribbon 13 to the corresponding input ports” as the first port is coupled to a first optical fiber and the second port is coupled to a second optical fiber; Fig. 3, column 5, lines 1 – 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Collier to include an apparatus of claimed wherein the first port is coupled to a first optical fiber and the second port is coupled to a second optical fiber such as that taught by Watanabe in order to provide a parallel optical transmission/reception module realizing a larger and longer data transfer using parallel optical transmission by detecting and/or correcting skews between parallel data channels (as suggested by Watanabe, see column 1, lines 36 – 39).

Response to Arguments

4. Applicant's arguments filed on 3/17/2006 with respect to claims 1 – 23 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-3131. The examiner can normally be reached on Monday through Friday from 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ACL

June 04, 2006



RICKY Q. NGO
SUPERVISORY PATENT EXAMINER